

Amendments to the Claims

Please amend the claims as follows:

1. (original) A device comprising:
 - (a) a solid component and
 - (b) a liquid composition interfaced therewith, said liquid composition having a refractive-index that is substantially equal to that of said solid component, said liquid composition being selected from the group consisting of:
 - (i) saturated cyclic compounds consisting essentially of carbon and hydrogen and optionally oxygen,
 - (ii) benzene substituted with one or more electron-donating groups attached directly to the ring and one of more fluoro groups attached to the ring or to the electron-donating groups, and
 - (iii) a combination comprising one or more of benzene or substituted benzene and optionally at least one of an alkane or substituted alkane having a boiling point less than about 130 °C.
2. (currently amended) A device according to claim 1 wherein said liquid composition is a saturated cyclic compound comprising one or two rings, each having have at least four atoms in the ring.
3. (currently amended) A device according to claim 1 wherein said liquid composition is benzene substituted with one or more electron-donating groups attached directly to the ring and one of more fluoro groups attached to the ring or to the electron-donating groups wherein said electron-donating groups are selected from the group consisting of alkyl, alkoxy, hydroxy, and amino ~~(with the proviso that the compound be liquid)~~.
4. (original) A device according to claim 1 wherein the weight percent of benzene or substituted benzene in said combination is about 30% to about 90%.
5. (original) A device according to claim 1 wherein said alkane is substituted with an hydroxy group, an oxo group, a keto group, or an alkoxy group.
6. (original) A device comprising the device of claim 1 wherein said device comprises a groove in a substrate.
7. (withdrawn) An optical system comprising:

(a) a solid component comprising a cavity and an optical path comprising first and second segments separated by said cavity;

(b) a liquid composition for enhancing optical coupling between said first and second segments, said liquid composition having a refractive-index that is substantially equal to that of said solid component, said liquid composition being selected from the group consisting of:

(i) saturated cyclic compounds consisting essentially of carbon and hydrogen and optionally oxygen,

(ii) benzene substituted with one or more electron-donating groups attached directly to the ring and one or more fluoro groups attached to the ring or to the electron-donating groups, and

(iii) a combination comprising one or more of benzene or substituted benzene and optionally at least one of an alkane or substituted alkane having a boiling point less than about 130 °C, and

(c) control means for selectively causing said liquid composition to be disposed in said cavity between said first and second segments.

8. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound comprising one or two rings.

9. (withdrawn) An optical system according to claim 8 wherein said ring or rings each have at least four atoms in the ring.

10. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound having no substituents.

11. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound substituted with one or more alkyl substituents.

12. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound that is a cyclic alkane, alcohol or ketone.

13. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound with a refractive index of about 1.44 to about 1.475 at 586.26 nm and a melting point below about 30 °C.

14. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound comprising two rings that are fused.

15. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound comprising two rings that are spiro.

16. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a saturated cyclic compound comprising one or two rings wherein each ring independently comprises from 4 to 12 carbon atoms in the ring.

17. (withdrawn) An optical system according to claim 7 wherein said liquid composition is a cycloalkane that is unsubstituted or substituted with alkyl, cycloalkyl, hydroxy, keto, alkyl or cycloalkyl substituted with hydroxy or keto, fused cycloalkyl, fused cycloalkyl substituted with hydroxy or keto, spiro cycloalkyl, spiro cycloalkyl substituted with hydroxy or keto.

18. (withdrawn) An optical system according to claim 7 wherein said liquid composition is selected from the group of compounds of Table 1.

19. (withdrawn) An optical system according to claim 7 wherein said liquid composition is benzene substituted with one or more electron-donating groups attached directly to the ring and one or more fluoro groups attached to the ring or to the electron-donating groups wherein said electron-donating groups are selected from the group consisting of alkyl, alkoxy, hydroxy, and amino (with the proviso that the compound be liquid).

20. (withdrawn) An optical system according to claim 7 wherein said liquid composition is benzene substituted with one or more electron-donating groups attached directly to the ring and one or more fluoro groups attached to the ring or to the electron-donating groups.

21. (withdrawn) An optical system according to claim 7 wherein said liquid composition is selected from the group of compounds of Table 2.

22. (withdrawn) An optical system according to claim 7 wherein the weight percent of benzene or substituted benzene in said combination is about 30% to about 90%.

23. (withdrawn) An optical system according to claim 7 wherein said benzene of said combination is substituted with one or more alkyl groups, fluoro groups, fluoroalkyl groups, or alkoxy groups.

24. (withdrawn) An optical system according to claim 23 wherein said alkyl groups comprise about 1 to about 20 carbon atoms.

25. (withdrawn) An optical system according to claim 7 wherein said alkane of said combination is straight chain, branched chain, or cyclic or a combination thereof.

26. (withdrawn) An optical system according to claim 25 wherein said alkane is substituted with a hydroxy group, an oxo group, a keto group, or an alkoxy group.

27. (withdrawn) An optical system according to claim 25 wherein said alkane comprises about 1 to about 30 carbon atoms.

28. (withdrawn) An optical system according to claim 7 wherein said substituted benzene is selected from the group consisting of toluene, xylene, ethylbenzene, diethylbenzene, propylbenzene, and dipropylbenzene, and fluorinated derivatives thereof.

29. (withdrawn) An optical system according to claim 28 wherein said fluorinated derivatives thereof are selected from the group consisting of fluorobenzene, difluorobenzene, trifluorobenzene, tetrafluorobenzene, pentafluorobenzene, hexafluorobenzene, fluorotoluene, difluorotoluene, trifluoromethyltoluene, tetrafluorotoluene, and pentafluorotoluene.

30. (withdrawn) An optical system according to claim 7 wherein said alkane or substituted alkane of said combination is selected from the group consisting of cyclohexane, cyclopentane, hexane, pentane, butane, propane, neopentane, methylbutane, methylpropane, methanol, ethanol, 2-propanol, 1-propanol, 2-butanol, 2-methyl-2-propanol, 2-methyl-1-propanol, acetone, butanone, cyclohexanone and cyclopentanone.

31. (withdrawn) An optical system according to claim 7 wherein said solid component comprises silica.

32. (withdrawn) An optical system according to claim 7 wherein said solid component is a substrate comprising a groove, said substrate being a component of an optical switch.

Claims 33-48 (canceled).

49. (withdrawn) An optical switch comprising:

- (a) optical waveguides that are formed in a substrate and intersect each other,
- (b) a cavity having a wall surface at a predetermined angle from the optical axis of the optical waveguide and positioned at the intersection of the optical waveguides, and
- (c) a refractive index-matching liquid disposed for selective introduction into said cavity wherein the refractive index-matching liquid is selected from the group consisting of:
 - (i) saturated cyclic compounds consisting essentially of carbon and hydrogen and optionally oxygen,
 - (ii) benzene substituted with one or more electron-donating groups attached directly to the ring and one or more fluoro groups attached to the ring or to the electron-donating groups, and
 - (iii) a combination comprising one or more of benzene or substituted benzene and optionally at least one of an alkane or substituted alkane having a boiling point less than about 130 °C.

50. (withdrawn) An optical switch according to claim 49 wherein said liquid is a saturated cyclic compound comprising one or two rings, wherein each ring independently comprises from 4 to 12 carbon atoms, said saturated cyclic compound being unsubstituted or substituted with one or more alkyl substituents.

51. (withdrawn) An optical switch according to claim 49 wherein said liquid is a saturated cyclic compound that is a cyclic alkane, alcohol or ketone.

52. (withdrawn) An optical switch according to claim 49 wherein said liquid is a cycloalkane that is unsubstituted or substituted with alkyl, cycloalkyl, hydroxy, keto, alkyl or cycloalkyl substituted with hydroxy or keto, fused cycloalkyl, fused cycloalkyl substituted with hydroxy or keto, spiro cycloalkyl, spiro cycloalkyl substituted with hydroxy or keto.

53. (withdrawn) An optical switch according to claim 49 wherein said liquid is selected from the group of compounds of Table 1.

54. (withdrawn) An optical switch according to claim 49 wherein said liquid is benzene substituted with one or more electron-donating groups attached directly to the ring and one or more fluoro groups attached to the ring or to the electron-donating groups wherein said

electron-donating groups are selected from the group consisting of alkyl, alkoxy, hydroxy, and amino (with the proviso that the compound be liquid).

55. (withdrawn) An optical switch according to claim 49 wherein said liquid is selected from the group of compounds of Table 2.

56. (withdrawn) An optical switch according to claim 49 wherein the weight percent of benzene or substituted benzene in said combination is about 30% to about 90%.

57. (withdrawn) An optical switch according to claim 49 wherein said benzene of said combination is substituted with one or more alkyl groups, fluoro groups, fluoroalkyl groups, or alkoxy groups. wherein said alkyl groups comprise 1 to about 20 carbon atoms.

58. (withdrawn) An optical switch according to claim 49 wherein said alkane of said combination is straight chain, branched chain, or cyclic or a combination thereof and wherein said alkane is substituted with an hydroxy group, an oxo group, a keto group, or an alkoxy group and wherein said alkane comprises about 1 to about 30 carbon atoms.

59. (withdrawn) An optical switch according to claim 49 wherein said substituted benzene is selected from the group consisting of toluene, xylene, ethylbenzene, diethylbenzene, propylbenzene, and dipropylbenzene, and fluorinated derivatives thereof.

60. (withdrawn) An optical switch according to claim 49 wherein said fluorinated derivatives thereof are selected from the group consisting of fluorobenzene, difluorobenzene, trifluorobenzene, tetrafluorobenzene, pentafluorobenzene, hexafluorobenzene, fluorotoluene, difluorotoluene, trifluoromethyltoluene, tetrafluorotoluene, and pentafluorotoluene.

61. (withdrawn) An optical switch according to claim 49 wherein said alkane or substituted alkane of said combination is selected from the group consisting of cyclohexane, cyclopentane, hexane, pentane, butane, propane, neopentane, methylbutane, methylpropane, methanol, ethanol, 2-propanol, 1-propanol, 2-butanol, 2-methyl-2-propanol, 2-methyl-1-propanol, acetone, butanone, cyclohexanone and cyclopentanone.

62. (withdrawn) An optical switch according to claim 49 wherein said substrate comprises silica and said cavity is a groove.

Claims 63-74 (canceled).